

GEOMETRICIAN'S VIEWS

TOPIC: KNOTS



Co-funded by the Erasmus+ Programme of the European Union

Erasmus+ 2020-1-FR01-KA227-SCH-095534

Mathematical View



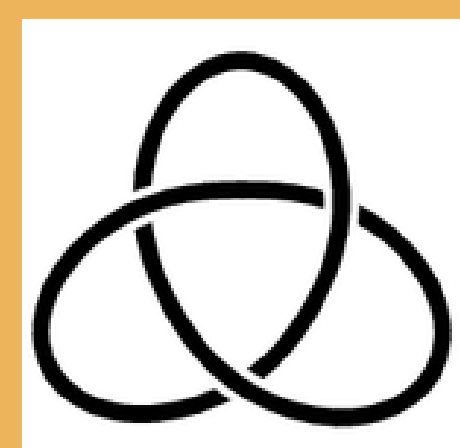
In mathematics, a knot is a simple curve enclosed in three-dimensional space. This mathematical object models a knot formed on a very thin rope whose ends have been joined.

In geometry, **a knot is an immersion of a circle in three-dimensional Euclidean space (i.e. in space), considered to be continuous deformations.**

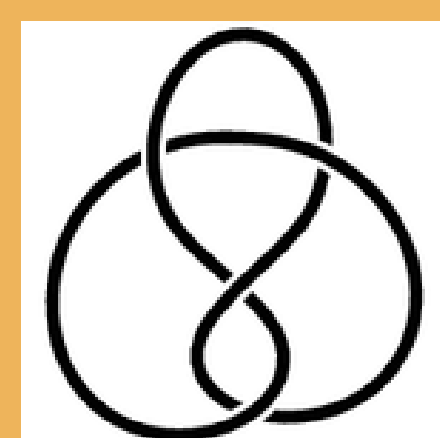
An essential difference between ordinary knots and mathematical knots is that the latter are closed (without heads that allow them to be tied or untied).

The branch of mathematics that studies knots is called knots theory. This theory has applications in physics (quantum field theory), chemistry and biology (the topology of DNA chains changes as a result of a biochemical process, favouring the formation of enzymes).

Researcher, Ioan Fechet



The Clover Knot



The Knot Eight

Artistic View



As the simplest knot, **the clover is a common motif in iconography and visual arts.**

In everyday life, knots are ties made with one or more ropes (strings, etc.), for joining or tying to a shovel, hook, ring, etc. Knot making techniques have their origins in prehistoric times. There are several types of knots such as sea knots, knots used in mountaineering, caving, climbing, rescue, fishing knots, etc.

Knots are a reality we are used to: a lace knot, a knotted hairstyle, a knitted sweater, a boat tied to shore.



A sheep wool upholstery that uses a technique based on braids and knots.

The wool is dyed in the house.

The colors are obtained from different plants (yellow and red onion peels, walnut leaves, alder bark ...).

The artists, Liana and Pavel Bența

Common View



The following types of knots are most commonly used:
joining knots (used to join two ropes of approximately equal thickness);
tie knots (used to attach a rope end to tie, hold or lift objects);
hook knots (used to tie one end of a rope to a hook, either to hang a rope or to lift objects);
special knots (are a category of knots that include knots with uses other than the previous knots or **involve a special execution**);
decorative knots.

artists, researcher, teachers involved in the project

